

STEPANOV, V. (stantsiya Platenyy Tashlyk Odessko-Kishinevskoy sholeznoy
dorogi)

Needs of a grain receiving station. Muk.-elev. prom. 30 no.3:
30 Mr '64. (MIRA 1714)

BOSMANSKY, K.; STEPANOV, V.

Assessment of the CO₂ content of the microclimate during short periods by means of an interferometer - contribution to methods for microclimate analysis. Cesk. hyg. 8 no.9:559-563 O '63.

1. Katedra hygieny deti, dorostu a vyzivy lekarske fakulty hygienicke KU, Praha.

MISHCHENKO, N.M., inzh.; BERDICHESKII, Ye.Ye., inzh.; TERMINOSYAN, N.S.,
inzh.; KURILOV, A.I., inzh.; POLYAKOV, M.M., inzh.; DEMIDOVICH,
Ye.A., inzh.; PINDURIN, N.I., inzh.; Prinimali uchastiye:
MALINOVSKIY, V.G.; MOLCHANOV, I.V.; MASHISHINA, M.P.; YEMCHENKO,
Ye.K.; CHEREDNICHENKO, A.A.; STEPANOV, V.A.; SKACHKOV, L.N.
[deceased]; KOSHMAN, A.I.; SHCHEKLIN, V.V.; CHUBATYUK, Ye.G.;
KHITOVA, Ye.Ye.; KOROBOVA, G.Z.; ROTMISTROVSKIY, B.M.; VEYSBEYN, A.D.

Increasing the efficiency of section tandem mills by the use of
repeaters. Stal' 23 no.3:236-241 Mr '63. (MIRA 16:5)

1. Yenakiyevskiy metallurgicheskiy zavod.
(Rolling mills--Equipment and supplies)

L 10767-65 EWT(m)/EWP(w)/EPR/EWP(b) Ps-4 ESD(t)/ASD(m)-3/ASD(f)-2/AFSTR/
AS(mp)-2/ASD(a)-5 JW/JD

ACCESSION NR: AP4044928

S/0181/64/006/009/2610/2617

AUTHORS: Stepanov, V. A.; Kurov, I. Ye.; Shpeyzman, V. V.

B

TITLE: Time-to-rupture of metals subjected to torsion

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2610-2617

TOPIC TAGS: metal breaking, torsion, aluminum, copper, zinc, plastic deformation, activation energy

ABSTRACT: In an earlier paper (FTT, 4, 191, 1962) Kurov and Stepanov reported that the dependence of the time-to-rupture τ on the stress σ and temperature T , in the case of aluminum, copper and zinc subjected to torsion, was

$$\tau = \tau_0 e^{-\frac{\sigma - \sigma_0}{RT}}$$

where σ_0 , τ_0 , a and γ are constants for a given metal, and R is the

Card 1/3

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ACCESSION NR: AP4044928

O

gas constant. Formally Eq. (1) differs from the dependence

$$\tau = \tau_0 e^{\frac{U_0 - U}{RT}}$$

found by Zhurkov et al. for uniaxial tension, only by the stress dependence of the pre-exponential factor. However, the basic difference is that the activation energy of the fracture process, U_0 , for torsion is only half the energy for tension. The present work reports further tests carried out between -85 and +100°C on Zn and Al + 5.5% Si hollow cylinders (outside diameter 2 mm, inside -- 1.5 mm). These tests confirmed that the type of stress affects U_0 . It is suggested that the change in U_0 is due to a change in the fracture mechanism: from fluctuation-type breaking of interatomic bonds in the case of tension to flow of vacancies to the tip of a growing crack in the case of torsion. The change in the mechanism is due to a sharp increase in the degree of plastic deformation and the rate of vacancy formation on transition from tension to torsion.

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L 10767-65

ACCESSION NR: AP4044928

Orig. art. has: 7 figures, 6 formulas, and 1 table.

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. F. Ioffe AN SSSR,
Leningrad (Physicotechnical Institute AN SSSR)

SUBMITTED: 24Feb64

ENCL: 00

SUB CODE: MM, SS

NR REF Sov: 015

OTHER: 004

Card 3/3

Steyanov, V. A.

"Investigation of Certain Parameters Determining the Limiting Wear on the Gear Wheels of Tractor Transmission Boxes." Min Higher Education USSR, Moscow Inst of the Mechanization and Electrification of Agriculture imeni V. M. Molotov. Moscow, 1955 (Dissertation for the degree of Candidate in Technical Sciences)

SO: *Prilozheniya* No. 27, 2 July 1955

STEPANOV, V.A., kand.tekhn.nauk.

Contact wear of tractor transmission gears. Trakt. i sel'khormash.
no.1:16-19 Ja '58. (MIRA 11:4)
(Tractors--Transmission devices)

112-57-8-16472D

Translation from: Referativnyy zhurnal, Elektrotehnika, 1957, Nr 8, p 66 (USSR)

AUTHOR: Stepanov, V. A.

TITLE: Optimum Load Distribution in Mixed Electric Power Systems Using
Computers and Automatic Operators (Naivygodneysheye raspredeleniye
nagruzok v smeshannykh elektro-energeticheskikh sistemakh s primeneniem
schetno-reshayushchikh ustroystv i avtooperatorov)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of
Candidate of Technical Sciences, presented to Mosk. energ. in-t (the Moscow
Power-Engineering Institute), Moscow, 1956.

ASSOCIATION: Mosk. energ. in-t (the Moscow Power-Engineering Institute)

Card 1/1

STEPANOV, V.A., kandidat khimicheskikh nauk.

Nomogram for determining air excess coefficients. Teploenergetika
(MIRA 10:3)
4 no.3:62-63 Mr '57.

1. Khabarovskiy pedagogicheskiy institut.
(Combustion)

STMPANOV, V.A., kand. khim. nauk.

Calculation of the air excess coefficient for gaseous fuels. *Teplo-energetika* 4 no.12:86 D '57.
(MLRA 10:11)

1. Khabarovskiy pedagogicheskiy institut.
(Gas--Analysis)

STEPANOV, V.A., starshiy nauchnyy sotrudnik

Residual amount of chlorotetracycline in the meat and by-products of poultry treated with this preservative. Trudy TSNIIIPPa 9:24-28 '62. (MIRA 16:6)

(Poultry—Preservation)
(Tetracycline)

STEPANOV, Viktor Aleksandrovich, kand. tekhn. nauk, dots.;
VLASOV, Pavel Andreyevich, assistent; RYBAKOV, Dmitry
Yur'yevich, st. prepod.; BANNIKOV, P., red.; VORONKOVA, Ye.,
tekhn. red.

[Some problems in the repair of parts and units of motor vehicles and tractors; generalization of advanced experience and research results] Nekotorye voprosy remonta avtotraktornykh detalei i agregatov; obobshchenie peredovo-go opыта i rezul'tatov nauchno-issledovatel'skikh rabot. Penza, Penzenskoe knizhnoe izd-vo, 1963. 86 p. (MIRA 17:4)

1. Kafedra "Remont mashin i tekhnologiya metallov" Penzенskogo sel'skokhozyaystvennogo instituta (for Stepanov, Vlasov, Rybakov).

ACCESSION NO: AP4012005

S/0208/64/004/001/0078/0095

AUTHORS: Popov, V. N. (Moscow); Stepanov, V. A. (Moscow); Stishova, A. G. (Moscow); Travnikova, N. A. (Moscow)

TITLE: Programming program

SOURCE: Zhurnal vychisl. matem. i matem. fiz., v. 4, no. 1, 1964, 78-95

TOPIC TAGS: programming, program, triple address machine, binary code, unconditional transmission, conditional transmission, manual programming, machine language

ABSTRACT: A programming program is set up for a triple-address machine with a nine-place binary code of operation and twelve-place addresses. The system of commands for the machine has all the basic arithmetic and logical operations and operations for commands. There are commands of unconditional transmission of control and commands of conditional transmission according to the sign worked out by the preceding command. The machine has a large external memory. Programming programs have been in use since October 1962. The time of programming is small; in the processing of one bit of information the time expenditure corresponds to 1000-2000 machine commands. Programs composed by a programming program are 1.5-2.5 times longer than

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ACCESSION NO: AP4012005

programs set up manually. The solution time for problems by programs composed by a programming program is 1.5-5 times greater than by programs composed manually. This relationship depends strongly on the quantity of cycles and variable addresses in them, and also on the quantity of procedures. The authors discuss the input language of a programming program, the history of programming programs, and transcoding of information. They construct a table of boundary of conditional addresses, treat preliminary processing of information and its translation into machine language, classification of procedures and formulation of procedure-schemes, and processing of information on blocks and variable addresses. The problem of programming operators is separated into two stages: regulation of the operations and their programming. Regulation of operations is reduced to separation of all syntactical units of the language into the sequences necessary for the program. Determination of the length of the program, construction of scales, and appropriation of true addresses are discussed. There are certain deficiencies in the programming program. It may have uneconomical formation of variable addresses. Now blocks are set up due to which these and other deficiencies are remedied. Included in a programming program is a block for processing variable addresses, linearly dependent on the parameter, with the help of commands of recovery and transaddress. With new processing of blocks an abstract of blocks is not set up, and the restriction on the quantity of blocks is

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ACCESSION NO: AP4012005

removed. A clearing of cycles and blocks is done. Clearing of a cycle means carrying out operations on the cycles which can be accomplished up to the beginning of working of the cycle. Clearing of a block means carrying out operations in the preparatory part of a block which can be used in it. The preparatory part of a block is the collection of descriptions and operators from the beginning of the block to the first mark, or to the first operator of the transfer, or to the first operator of the cycle. "G. M. Zaikina and S. A. Toporishcheva took part in various stages of the work on the programming program. The working out of the general scheme of the programming program is due to S. S. Lavrov. The authors express their gratitude to them for the valuable advice and constant interest." Orig. art. has: 1 table and 4 formulas.

ASSOCIATION: none

SUBMITTED: 22Mar63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: CP

NO REF SOV: 004

OTHER: 000

Card 3/3

L 22731-66 EWT(d)/EWP(h)/EWP(l)
ACC NR: AP6002902 (A)

SOURCE CODE: UR/0286/65/000/024/0066/0066

AUTHORS: Pangayev, V. A.; Stepanov, V. A.; Shestakov, V. S.

ORG: none

TITLE: Self-powered boom crane with pile-driver attachment. Class 35, No. 177057
/announced by Novosibirsk Branch of the All-Union Scientific Research Institute for
Transportation Construction (Novosibirskiy filial vsesoyuznogo nauchno-
issledovatel'skogo instituta po transportnomu stroitel'stvu)/

SOURCE: Byulleten' izobreteniy i otkrytykh znakov, no. 24, 1965, 66

TOPIC TAGS: crane, loading equipment, pile driver, transporting equipment

ABSTRACT: This Author Certificate presents a self-powered boom crane with pile-driver attachment, including a pile-driver boom with guideways hinged to the crane boom and a brace. The ends of the brace are attached to both booms. To decrease the time required to convert the crane to operating or transporting positions and to permit its use without dismounting the pile-driver boom, the latter is assembled from hinged parts operated by a drive mounted on the crane boom (see Fig. 1). The drive cable is attached to the lower part of the pile-driver boom and passes over

Card 1/2.

UDC: 621.873.3:629.11:624.155.15

18
B

L 22731-66

ACC NR: AP6002902

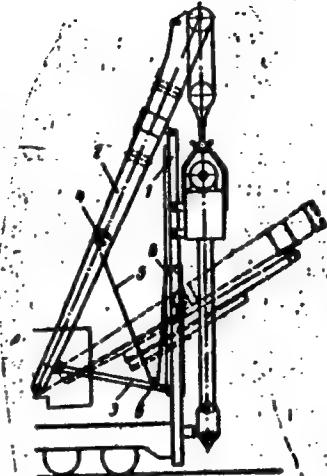


Fig. 1. 1 - pile-driver boom;
2 - crane boom; 3 - brace; 4 -
drive; 5 - cable; 6 - pulleys.

pulleys located at its top and on the cross-brace. The latter can rotate around its pivot connection with the crane boom. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 25Nov64

Card 2/2 ULR

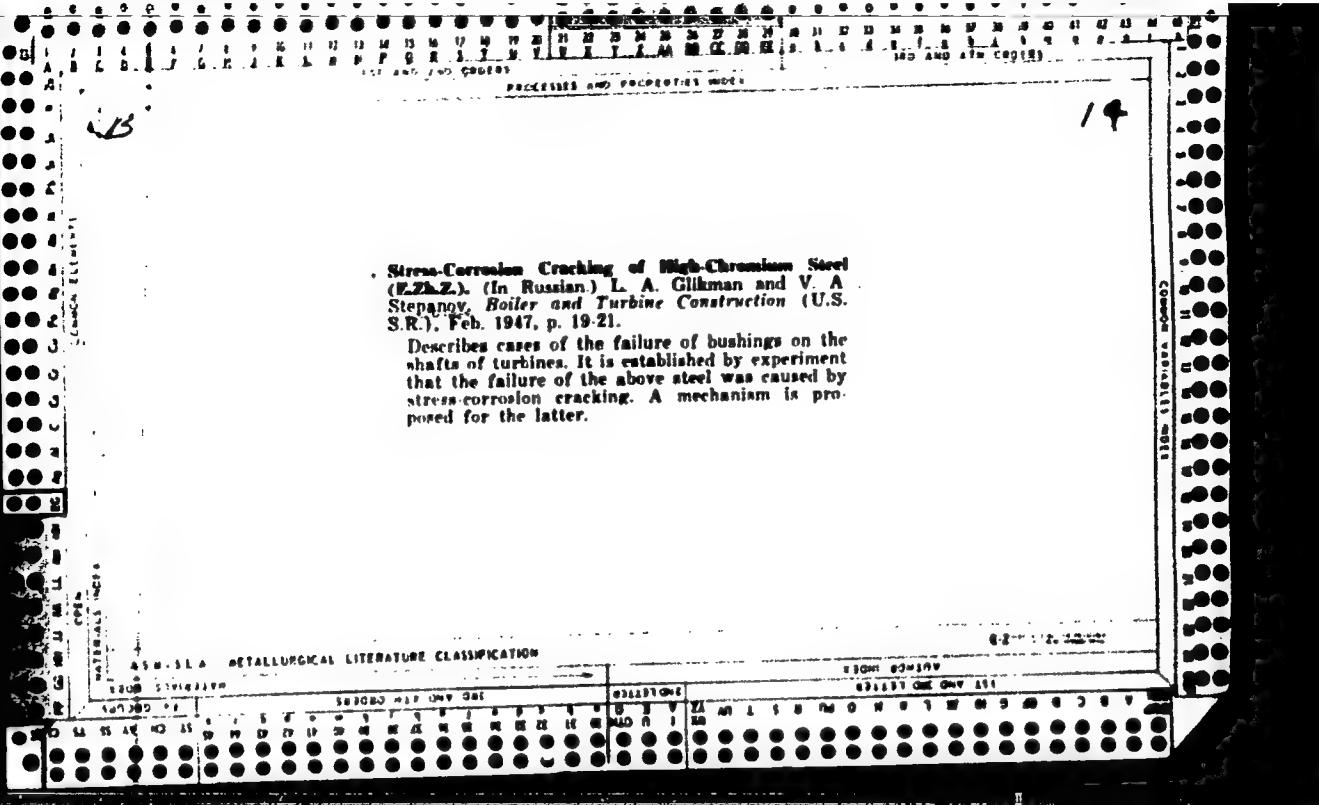
RECEIVED AND INDEXED 10-10-68
9

Influence of the rate of deformation on the cold brittleness of steel. I. F. F. Vitanov and V. A. Stepanov. *J. Tech. Phys.* (U. S. S. R.) 9, 1070 N (1967); cf. preceding abstr. The crit. temp. of brittleness of steel cylinders (0.2% of C, avg. grain size 50 μ) was at the rates v of impact of 0×10^3 and 83 m sec^{-1} , resp., -105 and -75° (ground cylinders) and -135 and -45° (rolled cylinders), resp. Some ground cylinders were bent; the pressure at the yield point increased from 50 kg sq mm at 10° to 112 kg sq mm at -170° . This pressure $p = ad^2$, being the temp. and a and b const. If the brittleness value is independent of the rate of impact, the relation between p and v can be found; p increases by 60% when v increases 10⁴ fold. 44 references. J. J. B.

SA

Influence of the rate of deformation on the cold brittleness of steel. II. P. F. Vitman and V. A. Stepanov. *J. Tech. Phys.* (U. S. S. R.) 9, 1885 (1930); cf. *C. A.* 34, 1957. Notched cylinders of steel (C 0.2%) were broken in bending at different speeds of the impact of a double knife. The upper crit. temp., T , of the cold brittleness test from -70 to 35° , and the lower crit. temp. from -115 to -5° , when the speed V increased from $6 \cdot 10^{-4}$ to 63 m./sec. It is $\log v = A - (B/T)$, A and B being const. The effect of the notch is the stronger the higher the speed. J. J. Bikerman

ASG-51A METALLURGICAL LITERATURE CLASSIFICATION



Residual Stresses During Flaring. (In Russian.) L. A. Chikman and V. A. Stepanov. *Kotlaturbostroenie* (Boiler and Turbine Industry), Sept.-Oct. 1948, p. 29-32.

Continuation of preceding work on experimental investigation of the above. Analyzes mechanism of formation of above stresses. Includes diagrams.

STEPANOV, V. A.

Mbr., Lab. Physics of Metal Working, Leningrad Polytech. Inst., -cl949-. Cand. Physico-Mathematical Sci. Mbr., Leningrad Metal Plant, im. Stalin, -cl948-c49-. "On the Origin of Residual Stresses of the First Kind in the Case of Tension," Zhur. Tekh. Fiz., 16, No. 6, 1946; "On the Origin of Residual Stresses in the Process of Grinding," ibid., No. 7, 1946; "Residual Voltages in Rolling Out Processes," ibid., No. 5, 1948; "The Emergence of Residual Stresses of the First Class Under Tension," Zhur. Tekh. Fiz., 19, No. 3, 1949; "The Origin of Residual Voltages in Polishing High-Chromium, Stainless Steel," ibid., No. 4, 1949.

Stepanov, V. A.

USSR/Physics - Metals, Mechanical Properties

FD 360

Card 1/1

Author : Vitman, F. F., Zlatin, N. A., Stepanov, V. A. and Shestopalov, L. M.

Title : Determination of the mechanical properties of metals by means of a small conic indentation and a shallow scratch

Periodical : Zhur. tekhn. fiz. 388-399, Mar 1954

Abstract : Experiments with a variety of metals are used to show that characteristics such as yield point, tensile strength and actual breaking point may be determined by means of a small conic indentation and a short superficial scratch. Critical review of literature on the subject is included.

Institution :

Submitted : October 10, 1953

STEPANOV A.

- Akademicheskii zhurnal** No. 12, 1959
Sistemnye problemy prochnosti tsverdogo seleniia shirokoi stekly (some Problems
in the Strength of Shallow Collected or Articles) Moscow, Izd-vo Akad. Nauk.
In the Strength of Shallow Collected or Articles) Moscow, Izd-vo Akad. Nauk.
1959. 366 p. Rouble 500 copies printed.
- M. V. Publishing House: V. T. Averyanov, Tech. Ed.; I. S. Pustovit
Editorial Board: A. F. Torchi, Academician; O. V. Kostomarov, Academician;
S. A. Sharov, Corresponding Member, USSR Academy of Sciences; P. P. Vlasov,
Borisenko, Corresponding Member, USSR Academy of Sciences; P. M. L. A.
Doctor of Physical and Mathematical Sciences, Professor; S. A. Sloboda, Doctor of
Physics and Mathematical Sciences, Professor; V. A. Stepanov, Doctor of Physical
and Mathematical Sciences, Professor; S. A. Lortse, Doctor of Technical Sciences, Professor; V. A. Prokof'ev, Doctor of Technical Sciences (Deputy Rep. Zi.),
Candidate of Technical Sciences.
- PURPOSE:** This book is intended for construction engineers, technologists, physico-
lists and other persons interested in the strength of materials.
- CONTENTS:** This collection of articles was compiled by the Odesskii fizicheskiy
kombinat nauchno-issledovatel'skogo instituta Akademii Nauk (Institute of Applied Physics,
and the Pisto-odesskii nauchno-issledovatel'skii institut Akademii Nauk (Institute of Applied Physics),
Academy of Sciences, USSR) in commemoration of the 50th birthday of Nikolay
Kolmogorovich Borisenko, Member of the Ukrainian Academy of Sciences, founder
and head of the Odessa precast concrete materials (Institute of the Strength of
Materials) at the Institute of Applied Physics, Academy of Sciences, USSR
(former director of the Pisto-odesskii nauchno-issledovatel'skii institut (Institute of Applied
Physics) at the Leningradskii poligonal'no-tekhnicheskii institut (Leningrad Poly-
technical Institute), professor of the Odessa Polytechnic Institute (1948), the Order of the
Red Banner of Labor (1955) and the Order of Lenin (1956). The article deals
with the strength of materials, phenomena of temperature elasticity, temper-
 brittleness, hydrogen embrittlement, cold brittleness, influence of temper-
ature on the mechanical properties of materials, fatigue of materials, and
general problems of the strength, plasticity, and mechanical properties of
concretes. Numerous publications are mentioned in the introductory part
of Professor Borisenko. His findings are given at the end of each article.
of Professor Borisenko. His findings are given at the end of each article.
- Borisenko, N. M., and Yu. B. Smirnov. Investigation of the Strength Brittle-
steel of Two-Piece Titanium Alloys. 140
- Dobrovol'skii, N. S., and G. P. Zhuravlev. Hydrogen Embrittlement of Steel and
the Influence of Mechanical Testing Conditions on Its Occurrence 152
- Efimov, Yu. S., V. D. Solomin, and S. M. Savchenko. Statistics for Metal
Brittleness. 161
- Efimov, Yu. S., V. D. Solomin, and S. M. Savchenko. Structure of Metal
Brittleness. 165
- Gorbatova, N. M., and Yu. B. Smirnov (Institut metallicheskoi Akademii, G.
Marine - Industrial Institute, Academy of Sciences, USSR, Moscow). In-
fluence of the Degree of Hardening on Cold Brittleness and Other Properties
of Chromium 172
- Horovitz, V. G., P. G. Bushkov, and Ye. G. Polozov. Cold Hardening of Pear-
lite Steel With an External Layer of Autemalitic Steel Alloy 179
- Kabibov, P. S. (Industrial'nyi institut imeni Rayzheva, S. R. Rayzhev -
Industrial'nyi institut imeni Rayzheva, Rayzhev). Effect of the Coalized
Steel and Some Other Factors on Fatigue Strength of Structural Steel 187
- Kazakov, Yu. N. (Krasnodar). Influence of Impact Spikes of 10°-Degree
Formation Brittleness of Metals at Impact Spikes of 10°-Degree
Spikes 194
- Kazakov, Yu. N. (Krasnodar). Influence of the Mechanical Properties of Plastic
Degrees of Aging 207
- Kazakov, Yu. N. (Krasnodar). Influence of Impact Spikes of 10°-Degree
Formation Brittleness of Metals at Impact Spikes of 10°-Degree
Spikes 222
- Kazakov, Yu. N., and Yu. I. Plotnichenko. Influence of a High Temperature
Bake on the Mechanical Properties of Steel Alloy Type V-95 After Martens-
ite 230
- Khlebnikov, G. V., and Yu. N. Voloboev. Elasticity (Institute of Mechanical
Engineering, Academy of Sciences, USSR, Moscow). Resistance to Initial
Plastic Deformation During Impact Stress Under Low-Temperature Conditions 238
- Gillman, L. A., and V. P. Webb. Physical Nature of Metal Fatigue. 246
- Kazakov, Yu. N., and S. M. Savchenko (Institut metallicheskoi Akademii, G.
Marine - Industrial Institute, Academy of Sciences, USSR, Moscow). Fatigue Strength of Large
Plates 256

PHASE I BOOK EXPLOITATION 30V/2985

2A(6)

Akademiya Nauk SSSR

Математичні проблеми прочесів таєчної та обробки матеріалів (some Problems in the Strength of Solids; Collection of Articles) Moscow, Izd-vo Akademiya Nauk SSSR, 1959. 986 p. Errata slip inserted. 2,000 copies printed.

Наукові видавництва: V. I. Amelinovych, Dnep., Ed.; Yu. S. Pervushin, Birovskiy Politekhnicheskiy Institut, Kirov, Academik G. V. Kurchatov, Academy of Sciences; G. V. Kurchatov, Corresponding Member, USSR Academy of Sciences; A. P. Tsvetkov, Corresponding Member, USSR Academy of Sciences; V. P. Yermakov, Doctor of Physical and Mathematical Sciences, Professor (Rep. Sci.); Yu. A. Gil'man, Doctor of Technical Sciences, Professor N. A. Litsyn, Doctor of Physical and Mathematical Sciences; V. A. Sopov, Doctor of Technical Sciences, Professor; S. S. Sazanov, Yu. A. Prudman, Doctor of Technical Sciences, Professor; S. S. Sazanov, Candidate of Technical Sciences (Deputy Rep. Sci.).

PURPOSE: This book is intended for construction engineers, technologists, physists and other persons interested in the strength of materials.

CONTENTS: This collection of articles was compiled by the Order Decree of the Ministry of Higher Education of the USSR (Department of Physical and Mathematical Sciences) and the Higher-education Institute of Applied Physics, and the Higher-education Institute of SSSR (Institute of Applied Physics), Academy of Sciences, USSR) in commemoration of the 20th birthday of Nikolay Nikolaevich Davydov, Member of the Ukrainian Academy of Sciences, founder and head of the Order, producer of material (Department of the Strength of Materials) at the Institute of Applied Physics, Academy of Sciences (USSR). Founder of the Philharmonic Society "Nikolaevskaya" (Department of Physical and Mathematical Sciences) at the Nikolaev Polytechnic Institute (Nationalized Polytechnic Institute), recipient of the Order of the Patriotic War (1945), the Order of the Red Banner of Labor (1955) and the Order of Lenin (1955). The article deals with the strength of materials, phenomena of increased elasticity, superelasticity, hydrogen embrittlement, cold brittleness, influence of deformation speed on the mechanical properties of materials, fatigue of metals, and general problems of the research, plasticity, and mechanical properties of materials. Numerous publications are mentioned in the introductory portion of Professor Davydov's article. References are given on the next page on the strength under repeated stresses.

Author: Yu. A. Sazanov, Yu. A. Prudman, and Yu. A. Petren'. Effect of Stress on the Strength Under Repeated Stresses

Author: A.Y. Aver'yanov. Accumulation of Fatigue Damage in Iron With Globular Carbide Particles Between Bounding

Author: Yu. A. and Yu. B. Prudman. Susceptibility of Metals to Cracks

Author: Yu. A. Sazanov, and Yu. B. Prudman. Elasticity of Deformation and Fatigue Processes in Connection With the Nature of Elastic Deformation

Author: Yu. A. (Industrial Institute Izmail SSSR, Kiev). On the realization of the Fatigue Strength of a Plastically Deformed Metal

Author: Yu. A. (Ural'sk Polytechnic Institute Izmail S.M. Kirova). Principles of the Statistical Theory of Strength

Author: Yu. A. and Yu. S. Sazanov. (Periodically Filled VITI and Polyacrylate Layered, Sverdlovsk Scientific Institute of Metalworking Materials). Mechanical Properties of Prepared Sheet Under Biaxial Tension

Author: Yu. A. Sazanov, Yu. A. Lurie, and V.P. Pash (Institute of Applied Physics, Academy of Sciences, USSR, Lebedev). Problem of Increasing the Strength of Glass

Author: Yu. A. and L.G. Shchukarev (Institute of Applied Physics, Academy of Sciences, Lebedev). Measuring Methods in Strength of Glasses by the Mechanical Method

Author: Yu. A. (Institute Metallooborot SSSR, Moscow). Some Findings on the Structure of Biscuits Under the Action of External Stress

Author: Yu. A. and V.P. Pash (Institute of Applied Physics, Academy of Sciences, Lebedev, Lebedev). Effect of Britteness of Glass

Author: Yu. A. and G.V. Sazanov (Crystallography Institute, Academy of Sciences, USSR, Moscow). Effect of the Type of Strength of Glass on Plastic-crystalline Properties of Some Plastics

AVAILABILITY: Library of Congress

86766

S/120/60/000/006/043/045
E032/E314

26.2/90

AUTHOR: Stepanov, V.A.

TITLE: Gas Valve with a Packing Gland Operating at Pressures
Up to 6 k atm

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6,
p. 135

TEXT: The author describes a new design of a needle-type by-pass valve suitable for operation at a gas pressure of up to 6 000 atm (see illustration). The pressure nut 8 has two safety ports for discharging the gas into the atmosphere in case of a packing failure. The needle screw 1 and the valve body are made of 40X (40Kh) steel (chromium steel), quench-hardened to $R_c = 35-38$; the pressure nut is also made of the same type of steel but is quench-hardened to $R_c = 30-32$. The needle 3 is made of 11X-15 (ShKh-15) steel (bearing steel), quench-hardened to $R_c = 60-62$; washers 4 and 5 and a bushing 6 are also made of ShKh-15 type steel, quench-hardened to $R_c = 56-58$. The packing around the needle consists

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S/120/60/000/006/043/045
E032/E314

Gas Valve with a Packing Gland Operating at Pressures Up to
6 atm

of six copper packing strips 7 fitted alternately with five
teflon strips 9. The thrust nut 2 is made of non-
hardened type 40X (40Kh) steel. The valve withstood 100
openings and closings at a pressure of 6 000 atm; it is
considered suitable for handling Ar, N₂ and CO₂ gases at
temperatures of 280 - 300 °C. In some of the tests the pressure
was increased to 7500 atm. As a stop valve it could withstand
pressures up to 15000 atm.

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86766
S/120/60/000/006/043/045
E032/E314

Gas Valve with a Packing Gland Operating at Pressures Up to
6 atm

There are 1 figure and 5 references: 1 English and
4 Soviet.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR
(Institute of High-pressure Physics of
the AS USSR)

SUBMITTED: October 29, 1959

Card 4/4

84659

1.1210 only 2108
5.1600 only 1273,1043

S/020/60/135/001/011/030
B006/B056

AUTHORS: Vereshchagin, L. F., Corresponding Member of the AS USSR,
Ryabinin, Yu. N., Preobrazhenskiy, A. Ya., and Stepanov,
V. A.

TITLE: Growth of Metal Monocrystals Under High Hydrostatic Pressure

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 1,
pp. 45-47

TEXT: The growth of metal monocrystals at high pressures is of interest above all because, on the basis of thermodynamic considerations, it must be assumed that the higher the pressure, the lower will be the inclination for forming structural defects. The assumption based on theory that with pressure the regularity of the lattice increases, requires experimental verification, which was the aim of the authors of the present paper. In this, the authors directed their attention also upon the fact that by the action of pressure, the properties of the crystals may undergo an essential change. Al and Zn monocrystals were grown from a melt. The melt

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84659

Growth of Metal Monocrystals Under High
Hydrostatic Pressure

S/020/60/135/001/011/030
B006/B056

was in a conical graphite container, which was especially well suited, because in it (in the furnace) a temperature gradient of 7 - 10 deg/mm could be well produced. Cooling of the melt was effected by lowering the electric power applied to the furnace. This was arranged in such a manner that the front of the crystallization temperature moved with 0.5 - 0.7 mm/min (at 10,000 atm), by which the rate of crystal growth was determined. First, monocrystals were grown in a vacuum and nitrogen- and argon media (normal pressure), the method being studied and the operation of the furnace watched. These crystals were produced at 0.3 kw (Zn) and 0.8 kw (Al) respectively during a time of 100 and 150 min, respectively. It was found that the electric power used had to be increased approximately linearly with pressure and amounts to 10,000 atm (N_2 or Ar) 1.8 and 3.0 kw, respectively. Under these conditions, the time of growth of a Zn monocrystal is 280 min, and for Al monocrystal 480 min. The experiments were carried out under constant and also not variable pressure. The authors assume that the crystals grown under variable pressure contain less gas than those grown under constant pressure. Growing under constant pressure required a special compensation of the temperature-dependent pressure change; the deviations from the constant pressure value were about ± 50 atm.

X

Card 2/3

84659

Growth of Metal Monocrystals Under High
Hydrostatic Pressure

S/020/60/135/001/011/030
B006/B056

The crystal structure was subjected to X-ray examination; the results obtained by these examinations are intended to be published in a later paper. There are 2 figures and 20 references: 12 Soviet, 2 German, 4 US, and 2 British.

ASSOCIATION: Institut fiziki vysokikh davleniy Akademii nauk SSSR
(Institute of Physics of High Pressures of the Academy
of Sciences USSR)

SUBMITTED: July 7, 1960

X

Card 3/3

S/120/61/000/002/041/042
E113/E135

AUTHORS: Stepanov, V.A., and Vereshchagin, L.F.
TITLE: High temperature resistance heater with graphite spiral heating element for high pressure vessels
PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.2, pp.194-195
TEXT: The design of the heater for heating the inside of vessels containing high pressure gas is shown in Fig.1. The heating element is a spiral (3), turned from a graphite rod together with robust end pieces. To increase the electrical contact area threads are cut in the end pieces on which the stainless steel contacts 1 and 10 are screwed. The heating element is surrounded by graphite tube (4) which is electrically insulated from the spiral by a pyrophyllite bush (6), put on the cylindrical neck of the intruding end piece. On each end the bush is fixed to the heating element by three porcelain pins (7), so that there is no relative movement between the spiral and the end pieces. The pins are in the relatively large uncut parts of the end pieces. The end pieces have small ohmic resistance and are placed sufficiently far away from the spiral so that the pins cannot

Card 1/ 4

S/120/61/000/002/041/042
High temperature resistance heater.. E113/E135

✓

overheat. Around the graphite tube (4), five coiled molybdenum sheet shields, each 0.2 mm thick, are fitted concentrically. The shields are spaced with gaps of 0.1 mm between them, which are maintained by means of two rows of pointed projections along the edges of the shields. The shields are held together by toothed rings; these create a gap of 2 mm between the inner wall of cover and the outer shield allowing only point contact at the teeth for heat conduction. Into this gap fireproof material in powder form is poured for additional heat insulation (for instance MgO). This gap and the annuli between the shields are closed with pyrophyllite washers (2) and (9). The length of the assembled heater is 120 mm, diameter 30 mm, corresponding to the diameter of the operating pipe of the high pressure vessel. The heater can be easily withdrawn and placed into the high pressure vessel by means of a rod screwed on the threaded part of contact (1)(Fig.1). Contact (10) sits on the "finger" of the lead which is placed in the middle of the cover closing the high pressure vessel. The other end of the spiral is connected to the wall of the pipe by means of contact (1) and in this way the electrical circuit is closed through the body of the vessel. The maximum working

Card 2/4

S/120/51/000/002/041/042
High temperature resistance heater..E113/E135

temperature of the heater depends on the material used. Graphite has been chosen as it has the best properties for this application. A heater of given dimensions gave a temperature rise up to 2200 °C at 15 katm. pressure, with a power consumption of 2.8 kW to 3 kW. The effectiveness of the present method of heat insulation has been tested experimentally (in Ar, N₂ and CO₂ atmospheres), and it was found that at 2200 °C inside the heater and at 15 katm. after one hour of continuous operation, at a point in the wall of the high pressure vessel 15 mm from its inner wall, the temperature was 170 °C. The heater withstood satisfactorily several cycles of applying and relieving the pressure. Acknowledgements are expressed to I.Ye. Surkov and V.A. Frolov who assisted in the construction of the heater. (This is an abridged translation). There are 2 figures and 4 references: 3 Soviet and 1 English.

ASSOCIATION: Institut fiziki bysokikh davleniy AN SSSR
(Institute of High Pressure Physics, AS USSR)

SUBMITTED: January 29, 1960

Card 3/4

16000

also 3409

27719
S/120/61/000/003/032/041
E073/E535

AUTHOR: Stepanov, V. A.

TITLE: Unbroken thermocouple connection lead from a high pressure vessel

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.3, p.179

TEXT: The illustration shows a lead for tungsten and chromel-alumel thermocouples fitted into vessels containing gas (Ar, N₂ and CO₂) at pressures up to 15 katm. The bushing 2 has a hole which is 0.01 to 0.02 mm larger than the diameter of the wire going through it. The conical insulating material 3 is machined from pyrophillite, either in the raw state or annealed to 300-400°C, the wall thickness being 0.3 to 0.5 mm. The insulating material also serves as a seal between the bushing and the body on which it is fitted. By hitting with a hammer the cowl 1 through a drift, which has a slot for the conductor, the wire in the nipple is compressed and the entire assembly is reliably sealed. The thus assembled electric connection will fit perfectly without any further fixing operations. The bottom cone has an angle of 18° and the top cone an angle of 10°. The cowl is made

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Unbroken thermocouple connection ... S/120/61/000/003/032/041
27719
E073/E535

of steel 40X (40Kh) quenched to a hardness of 38-40 Rc. The seal of the electric lead is based on the principle of uncompensated surfaces. The resistance of the wire against being squeezed out from the bushing is generated by the friction along the wall of the hole which, according to Bridgman, increases exponentially with the length of the hole. The relative length of the hole in the bushing is comparatively large and amounts to 40 diameters of the thermocouple wire. This electric connection operates reliably at elevated temperatures (fusion temperature of pyrophyllite at normal pressure is about 1500°C). A connection fitted on the obturator was able to withstand 20 cycles without needing any repair. The described connection was built and assembled by I. Ye. Surkov and V. A. Orolov. There are 1 figure and 9 references: 7 Soviet and 2 non-Soviet. The English-language references read as follows: L. Patrick, Phys. Rev., 1954, 93, No.2, 178; F. I. Edeskuty, R. H. Chrisman, Rev. Scient. Instrum., 1958, 29, No.2, 178.

[Abstractor's Note: Slightly abridged translation]

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR
Card 2/3 (Institute of High Pressure Physics AS USSR)

18.9560
1.6000 also 3409

27721
S/120/61/000/003/035/041
E073/E335

AUTHORS: Preobrazhenskiy, A.Ya. and Stepanov, V.A.

TITLE: Graphite Crucible-furnace for Growing Single Crystals

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 3,
pp. 187 - 188

TEXT: From the point of view of production of crystals with properties approaching those predicted by the solid-state theory, it is interesting to investigate the influence of high hydrostatic pressure on the growth and properties of single crystals. A description is given of a furnace for growing single crystals, which was tested at normal pressure and in vacuum and is intended for placing into a high-pressure vessel. A sketch of the furnace is shown in Fig. 1 (1 - contact ring made of Steel 3; 2 - contact ring made of graphite; 3 - contact lead made of copper; 4, 5 - screw and washer made of Steel 3; 6 - screen made of graphite; 7 - heating element made of graphite; 8 - bushing made of pyrophilite). The heating element is machined from a solid graphite block

Card 1/5

27721
S/120/61/000/003/035/041
E073/E335

Graphite Crucible-furnace

to a configuration as shown in Fig. 2, which ensures the required temperature gradient of the furnace during operation. The central conical part of the body of the heating element is the hot part and serves as the ingot mould for producing the single crystals. By changing the dimensions of the middle part of the heating element, it is possible to change the distribution of the electric resistance and the temperature of the furnace, thus obtaining the required temperature distribution in the furnace. The massive head of the heater is slotted to receive electrical contacts. The power supply to the furnace is varied between the limits of 0.3 to 1.5 kW to ensure the temperature conditions required for growing single crystals. The power input can be increased to 3 to 4 kW without changing the dimensions of the furnace. A coaxial graphite screen resting on a pyrophilite insulating bushing, located at the base of the heating element, is used for thermal insulation of the furnace. The screen is fixed at the top by means of a graphite nut, which is screwed-on to the top of the heating element. The space between the heating element and the graphite screen is filled with magnesium oxide, which serves as thermal and

Card 2/5

Graphite Crucible-furnace

²⁷⁷²¹
S/120/61/000/003/035/041
E073/E335

electrical insulation. Due to the conical shape of the heating element the thickness of the MgO layer is variable and averages 2.5 mm. Due to this thermal insulation the temperature of the external wall of the screen does not exceed 250 °C, even at the hottest section of the furnace (point B). The furnace is simple to produce and reliable in operation. The same graphite mould can be used for repeated growing of single crystals. The first sign of damage to the internal walls of the mould is the appearance of black stripes on the surfaces of the specimens. The internal wall of the mould must be carefully rubbed (smoothed) to eliminate damage. During the experiments the furnace is placed under the bell of a vacuum system, where a vacuum of about 10⁻² mm Hg is produced or inert gas (Ar or N₂) is fed in. The temperature difference between the coldest (A) and the hottest (B) points of the mould exceeds 300 °C before crystallisation starts. Cooling of the melt in the ingot mould is achieved by reducing the electric current fed to the mould. The furnace has been used for growing crystals of Zn, Al and Cu and a yield of single

Card 3/5

X

Graphite Crucible-furnace

27721
S/120/61/000/003/035/041
E073/E335

X

crystals of up to 90% can be obtained. Acknowledgments are expressed to L.F. Vereshchagin for his advice and interest and to I.Ye. Surkov and V.A. Frolov for their assistance in producing the furnace described here.

There are 2 figures and 5 Soviet references.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR
(Institute of High-pressure Physics of the
AS USSR)

SUBMITTED: July 9, 1960

Card 4/5

18.8200

USSR
revised from
S/181/62/004/001/030/052
B104/B102
33357

AUTHORS: Kurov, I. Ye., and Stepanov, V. A.

TITLE: Longevity of metals in torsion

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 191 - 201

TEXT: The strain effect on the temperature - time characteristics of longevity was studied by torsion tests of Al, Zn, and Cu. The test length of the cylindrical specimens was 12 mm, the diameter was 8 mm. The radius at the junction to the tips of the specimens was 40 mm. Complementary torsion tests were made with specimens having a diameter of 6 mm and a test length of 30 mm. From the experimental results the formula $\tau = \tau'_0 \exp(-\alpha t_{max}) \exp\left\{(\mu_0 - \gamma t_{max})/RT\right\}$ where τ'_0 , α , μ_0 and γ are material constants depending on temperature and stress, is obtained for the time elapsing until the specimen breaks at constant stress. t_{max} is the maximum tangential stress. This formula differs from that derived by S. N. Zhurkov and T. P. Sanfirova (DAN SSSR, 101, 2, 237, 1955; Vestn. AN SSSR; 11, 1957; FTT, 2, 1033, 1960) in the dependence of τ'_0 on stress.

Card 1/2

33357
S/181/62/004/001/030/052
B104/B102

Longevity of metals in torsion

and temperature. The activation energy of the destruction process caused by torsion is approximately half the sublimation energy determining the potential barrier of the destruction process caused by tensile stress. Hence the absolute longevities of a certain metal at equal normal stresses may differ by some orders of magnitude when determined by torsion or tension tests. The universality of the Jonson number is doubted. The differences in longevity are explained by the different macroscopic nature of the destruction. There are 9 figures, 2 tables, and 18 references: 14 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: C. Gurney, Z. Borysowski, Proc. Phys. Soc., 61, 5, 446, 1948; L. F. Kooistra, R. U. Blaser, J. T. Tucker, Trans. ASME, 74, 783, 1952; A. E. Jonson, N. E. Frost, Engineer, 191, 4967, 434, 1951; A. E. Jonson, J. Henderson, V. D. Mathur, Engineer, 202, 5248, 261, 299, 1959.

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. F. Ioffe AN SSSR
Leningrad (Physicotechnical Institute imeni A. F. Ioffe
AS USSR, Leningrad)

SUBMITTED: July 26, 1961
Card 2/2

✓

IVANOV, N.P.; LAGUNOV, V.A.; STEPANOV, V.A.

Compression strength of plastics at high rates of strain.
Plast. massy no.8:49-53 '63. (MIRA 16:8)

(Plastics...Testing)

PREOBRAZHENSKIY, A.Ya.; STEPANOV, V.A.

Chemical saw and drill. Prib. i tekhn. eksp. 8 no.4:192-193
Jl-Ag '63. (MIRA 16:12)

1. Institut vysokikh davleniy AN SSSR.

STRELANOV, V.A.; KULIK, I.YU.; SUDAIKIN, V.V.

Longevity of metals in torsion. Fiz. tver. tela 6 no.9:2610-2617
S '64. (MIRA 17:11)

1. Fiziko-tehnicheskiy institut imeni Ioffe AN SSSR, Leningrad.

L 61628-65 EWT(d)/EED-2/EWP(1) Pg-4/Pg-4/Pk-4 IJP(c) BB/GG/GS

ACCESSION NR: AT5014714 UR/0000/65/000/000/0082/0090

AUTHOR: Alekseyev, V. N.; Damaskinskaya, N. Ya.; Stepanov, V. A.

33
B+1

TITLE: Ferrite core memory ^{16C} device using ferrite pairs with full current recording and reading

SOURCE: Operativnyye i postoyannyye zapominayushchiya ustroystva (Rapid and non-volatile storage); sbornik statey. Leningrad, Izd-vo Energiya, 1963, 82-90

TOPIC TAGS: ferrite pair memory, full current recording, full current reading, ferrite core memory

ABSTRACT: A memory is described in which the recording and reading of information is carried out by currents whose limit of variation is unbounded from above. This was achieved by the use of two coupled, toroidal, ferrite cores for the registration of a single binary unit of information. One of the cores serves for the actual storage of information, while the second serves for the recording and reading of the basic core and plays an auxiliary role. In the operative memory developed at the department of automation and telemechanics of the LPI im. M. I. Kalinina, the cores are coupled by a single turn of copper wire. The

Card 1/2

L 61628-65

ACCESSION NR: AT5014714

length and diameter of the wire determines the magnitude of the active resistance. The article describes in detail the operation of the unit, develops the necessary theoretical expressions, and presents data from experimental tests on the quality of operation of such ferrite pairs. Orig. art. has: 17 formulas and 5 figures.

ASSOCIATION: LPI im. M. I. Kalinina

SUBMITTED: 20Jan65

ENCL: 00

SUB CODE: DP

NO REF Sov: 000

OTHER: 000

Card

2/2

L 56651-55 EWT(1)/EWT(m)/EWG(v)/EWA(d)/F-R/T-2/EWP(t)/EWP(k)/TPA(bb)-2/
EWP(b)/EWA(c) Pe-5/Pf-4/Ps-4 JD/WW/HV
ACCESSION NR: AP5011898 UR/0120/65/000/002/0199/0199
539.893

AUTHOR: Preobrazhenskiy, A. Ya.; Stepanov, V. A.

TITLE: Valve for 20-katm pressure gas

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1965, 199

TOPIC TAGS: high pressure valve

ABSTRACT: An improved design (sketch supplied) of an old Soviet 6-katm needle valve which now withstands a working pressure of 10 katm and a closed-position needle pressure of 20 katm is briefly described. A hydraulic actuator (oil at 1.5-katm pressure) operates the needle. It is hoped that the improved valve would operate at pressures as high as 12-13 katm. Orig. art. has: 1 figure.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of High-Pressure Physics, AN SSSR)

SUBMITTED: 19Feb64

ENCL: 00

SUB CODE: IE

NO REF SOV: 001

OTHER: 001

281
Card 1/1

L 56650-65 EWG(j)/EWT(1)/EWP(e)/EWT(m)/EPF(c)/EWP(i)/EWA(d)/EPR/T/EWP(t)/
EEC(b)-2/EWP(k)/EWP(b)/EWA(c) Pf-4/Pr-4/F₃-4/Pi-4 LIP(c) JD/WW/HW/GG/WH
ACCESSION NR: AP5011897 UR/0120/65/000/002/0196/0198 59
539.893:548.55 58
G

AUTHOR: Preobrazhenskiy, A. Ya.; Stepanov, V. A.

TITLE: Crystal growing in high-pressure gas

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1965, 196-198

TOPIC TAGS: crystal, crystal growing

ABSTRACT: An outfit for crystal growing at high pressures was developed for studying the effect of pressure on crystal lattice. Single crystals of Zn, Al, Cu were grown at 10 katm. The outfit can also be used for growing CdS, ZnS, PbS, and other crystals having high vapor pressure at melt temperature. Argon or nitrogen, via a filter, is fed to a compressor and then, via another filter, to a high-pressure chamber (design sketch supplied) 30 mm diameter, 140 mm height, which includes a special graphite-heater electric furnace. Some details are given, and processing is described. "The authors wish to thank L. F. Vereshchagin for his valuable advice and interest in the work." Orig. art. has: 3 figures.

" Card 1/2

L 56650-65

ACCESSION NR: AP5011897

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of High-Pressure Physics, AN SSSR)

SUBMITTED: 19Feb64

ENCL: 00

SUB CODE: SS

NO REF SOV: 006

OTHER: 001

282
Card 2/2

L 35526-65 EWT(1)/EPA(s)-2/EPF(n)-2/EPR/T-2/EPA(b)-2 Pg-4
ACCESSION NR: AP5008184 S/0286/65/000/005/0060/0060

AUTHORS: Martinson, Ye. N.; Plechev, B. I.; Myznikov, K. N.; Stepanov, V. A.

TITLE: Working liquid for vacuum pumps. Class 27, No. 168840

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 60

TOPIC TAGS: vacuum pump, coolant, hydrocarbon, cryohydrate

ABSTRACT: This Author Certificate presents the application of cryohydrates as working liquids for vacuum pumps (such as mechanical or steam-jet pumps) for the purpose of providing hydrocarbon-free evacuation.

ASSOCIATION: none

SUBMITTED: 13Nov63

ENCL: 00

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/1

PERIODICALS LIBRARY
U.S. ECONOMIC INFORMATION SERVICE
U.S. GOVERNMENT PRINTING OFFICE: WASH., D.C.

Properties and deformation of polymers at low temperatures.
Fiz. i zv. vysokomol. soed. 7 no.10:2952-2968 N 1965. (101-18.02)

1. Fiziko-tehnicheskiy in-t imeni Ioffa (Moscow, Leningrad).

L 16793-66 ENT(d)/EWP(1) IJP(c) EB/GG

ACC NR: AT6005082

SOURCE CODE: UR/2563/65/000/256/0129/0133

AUTHOR: Damaskinskaya, N. Ya.; Nosyrev, I. K.; Stepanov, V. A.

34

B+1

ORG: none

16,44

TITLE: Optimum choice of parameters of the operative memory using ferrite pairs

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 256, 1965. Tsifrovyye izmeritel'nyye i upravlyayushchiye ustroystva (Digital measuring and control devices), 129-133

TOPIC TAGS: ferrite core memory, computer memory

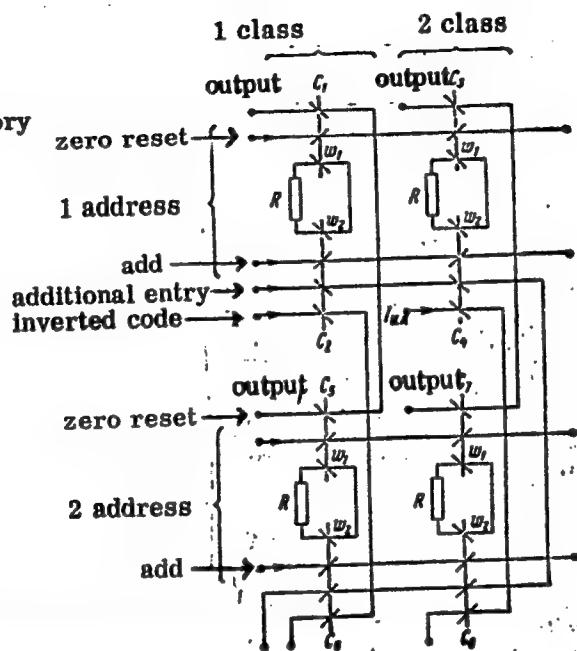
ABSTRACT: The operative memory made of ferrite core pairs can operate reliably without temperature controls. The introduction and retrieval of information are carried out by current pulses the amplitude of which is not limited from above, and this results in a temperature independent operation. The principles of operations of ferrite pair units is discussed on a matrix example shown in Fig. 1. The ferrite pair memorizes a single binary unit. The article presents all the pertinent relations and quotes theoretical results which indicate that normalized ferrite core pairs should secure reliable memory

Card 1/3

2

L 16793-66
ACC NR: AT6005082

Fig. 1. Operative memory matrix made of ferrite pairs.



Card 2/3

L 16793-66

ACC NR: AT6005082

operation within the -60 to +60C range. The retrieval time is of the order of 10 μ sec
for cycling current pulses not exceeding 1.5 A. Orig. art. has: 9 formulas and 1 figure.

SUB CODE: 09 / SUBM DATE: none

Card 3/3 *sm*

L 26625-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) WW/RM

ACC NR: AP5025373

SOURCE CODE: UR/0181/65/007/010/2962/2968

AUTHOR: Peschanskaya, N. N.; Stepanov, V. A.

56
B

ORG: Physico-technical Institute im. A. F. Ioffe, AN SSSR, Leningrad, (Fiziko-tehnicheskiy institut AN SSSR)

TITLE: Strength and deformation of polymers at low temperatures

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 2962-2968

TOPIC TAGS: polymer, material deformation, cryogenic effect, cycle strength, tensile strength

ABSTRACT: The properties of solid polymers, e.g., strength and deformability, were investigated during constant velocity stress (stress changing in the process of examination). The question is examined of temperature variation of strength and deformation, accumulated at yield point under the influence of constants at times of stress. Experiments were conducted on non-oriented linear polymers below vitrification temperatures. During investigations of polymethylmethacrylate and a number of polyvinylacetals it was established that there are several characteristic temperatures during which the constants

Card 1/2

L 26625-66

ACC NR: AP5025373

of temperature-time dependencies of strength and degrees of remanent strain change at yield. These changes are combined with occurrence or loss of side group mobility of polymer molecules. Orig. art. has: 8 figs. 1 table.

SUB CODE: 1120/ SUBM DATE: 17Apr65/ ORIG REF: 009/ OTH REF: 001

Card 2/2

ACC NR: AP6030162

SOURCE CODE: UR/0120/66/000/004/0217/0218

AUTHOR: Preobrazhenskiy, A. Ya.; Stepanov, V. A.

ORG: Institute of Physics of High Pressures, AN SSSR, Moscow (Institut fiziki vysokikh davleniy AN SSSR)

TITLE: Combined lead of large cross section for feeding electrical energy and gases into high pressure vessels

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1966, 217-218

TOPIC TAGS: high pressure chamber, high temperature instrument, electric power transmission

ABSTRACT: Two engineering drawings for combined leads used to feed electrical energy and gases into high pressure vessels are presented and discussed. The leads have a large cross section (approximately 500 mm²) and were tested at a pressure of approximately 15 kilobar and a temperature of approximately 2500°C inside the high pressure vessel. The combined lead incorporates a thermocouple and is insulated from the high pressure vessel case by means of pyrophyllite packing, by a thin layer of Fe₂O₃ paste applied to the threaded connection and by an additional conic packing. Up to 8 independent wire leads can be used. An insulated nut is used to produce the initial pressure in the packing. Cooling liquid may be used in the lead to program the pro-

UDC: 539.89

Card 1/2

ACC NR: AP6030162

per growth of crystals inside the high pressure vessel and to maintain a constant lead temperature as the density of the electrical current passing through the lead is varied. Other combinations of the basic elements described in the article have been used experimentally for a variety of applications. Orig. art. has: 2 figures.

SUB CODE: 20,14,09/ SUBM DATE: 05Aug65/ ORIG REF: 009/ OTH REF: 005

Card 2/2

STEPANOV, V.A. [Stepanov, V.O.]

Field studies on the motion of a vessel at supercritical speeds in
a canal. Dop. AN URSR no.9:1180-1184 '60. (MIRA 13:10)

1. Institut gidrologii i gidrotekhniki AN USSR. Predstavлено
академиком AN USSR G.I.Sukhomelom.
(Ship resistance)

PAVLENKO, Georgiy Yevstaf'yevich; STEPANOV, Viktor Alekseyevich; DUDCHENKO,
Oleg Grigor'yevich; PECHKOVSKAYA, O.M., red. izd-va; MATVEYCHUK,
A.I., tekhn. red.

[Determining ship elements for propulsion on canals at supercritical
speeds] Opredelenie elementov sudov dlia dvizhenia na kanalakh so
sverkhkriticheskimi skorostiami. Kiev, Izd-vo Akad. nauk USSR, 1961.
28 p. (MIRA 14:8)

(Inland navigation) (Ship propulsion)

STEPANOV, V.A. [Stepanov, V.O] (Kiyev)

Determining critical speeds for the motion of a ship in a
canal. Frykl.mekh. 7 no.4:432-441 '61. (MIRA 14:9)

1. Institut gidrologii i hidrotekhniki AN USSR.
(Inland navigation)

STEPANOV, V.A. [Stepanov, V.O.]

Making use of irrigation canals for transportation purposes. Visti
Inst. hidrol. i hidr. AN URSR 19:91-98 '61. (MIRA 15:7)
(Irrigation canals and flumes)
(Inland water transportation)

STEPANOV, V.A. [Stepanov, V.]

Small test basin of the Institute of Hydrology and Hydraulic Engineering
in the Academy of Sciences of the Ukrainian S.S.R., Visti Inst.
hidrol. i hidr. AM URSR 19:99-102 '61. (MIRA 15:7)
(Ukraine—Ship models—Testing)

STEPANOV, V.A. [Stepanov, V.O.] (Kiyev); STEPANYUK, V.V. (Kiyev)

Determining minimum speed for supercritical conditions of ship
movement in canals. Prykl.mekh. 8 no.5:534-540 '62.
(MIRA 15:9)

1. Institut gidrologii i gidrotekhniki AN UkrSSR.
(Canals) (Inland navigation)

PANCHENKOV, A.N. [Panchenkov, A.N. (Kiyev); STEPANOV, V.A. [Stepanov, V.O.] (Kiyev)

Calculating load distribution along the submerged hydrofoil
span. 1 y l. mekh. 10 no. 23173-180 *64 (MIRA 1757)

1. Institut mekhaniki AN UkrSSR.

STEPANOV, V.A. [Stepanov, V.O.]

Interaction of oblique waves with the canal walls and the
hull of a ship moving at a supercritical speed. Visti Inst.
hidrol. i hidr. AN URSR 22:86-101 '63. (MIRA 18:11)

L 14164-66 EWP(j)/EWT(m)/ETC(m)-6/T RM/NW

ACC NR: AP6003937

SOURCE CODE: UR/0374/65/000/005/0034/0038

AUTHOR: Ivanov, N. P. (Leningrad); Stepanov, V. A. (Leningrad)9
B

ORG: none

TITLE: Measuring the strength of plastics by high speed compression

SOURCE: Mekhanika polimerov, no. 5, 1965, 34-38

TOPIC TAGS: ~~temperature~~, reinforced plastic, dynamic stress, ~~effect~~, high speed photography, resin, ultimate stress high temperature research, low temperature researchABSTRACT: The strength of two reinforced plastics and of two pure resins at temperatures from minus 196°C to plus 150°C was determined by high speed photography. The strength of plastics at an elevated temperature was sensitive. The difference in the static and dynamic properties at minus 196°C was insignificant. Authors thank N. G. Mazayev, senior laboratory technician, for his great help in carrying out the tests. Orig. art. has: 5 figures. [Based on author's abstract].

SUB CODE: 11 / / SUBM DATE: 24May65/ ORIG REF: 007

Card 1/1 *do*

UDC: 678:539.4.019

KOZOV, Ivan Alekseevich; STEJANOV, Viktor Amareyevich;
IMAYLOVSKIY, N.G., ~~red.~~

[Trucks of all-metal passenger cars; their design,
operation, maintenance and repair] Telezhki tsel'no-
metallicheskikh passazhirskikh vagonov; ustroistvo,
ekspluatatsiya i rekont. Moskva, Transport, 1965.
214 p. (MIRA 18:2)

STEPANOV, V.A., inzh. (Leningrad)

Repair and preparation of cars for express trains.
Zhel.dor.transp. 46 no.12:71-73 D '64.

(MIRA 19:1)

1. Zamestitel' nachal'nika vagonnogo depo stantsii Leningrad-Moskovskiy-Passazhirskiy Oktyabr'skoy zheleznoy dorogi.

9.4220

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S/142/60/003/006/007/016
E033/E135

AUTHORS: Gubernatorov, O.I., and Stepanov, V.B.

TITLE: Experimental investigation of the frequency-locking process in the reflection klystron

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol.3, No.6, pp. 605-612

TEXT: The results of an experimental investigation into the operation of a reflection klystron synchronised by an external e.m.f. having a frequency near to the self-oscillation frequency of the klystron are given. The synchronisation bandwidth and the optimum electrode voltages for synchronisation are determined. Data on the time to establish the phase of the synchronised oscillations are produced. From theoretical considerations, it is deduced that: 1) the synchronisation process is fundamentally analogous to the synchronisation process in LC oscillators; 2) the time to establish the phase of the oscillation and the synchronisation bandwidth are determined not only by the ratio of the amplitudes of the induced and free oscillations, but also by the operational conditions of the klystron;

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Experimental investigation of the ...

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E033/E135

3) the synchronisation bandwidth is a statistical time function, depending on the values and stability of the electrode voltages, the smoothness of the supply voltage, the constancy of the ambient temperature and the constancy of the load impedance value.

The aims of the experiment were: 1) to find how the synchronisation bandwidth depends on the power induced in the resonator of the synchronised klystron; 2) to evaluate the probability of synchronisation within the band for a given level of external e.m.f. and a specific supply stability; 3) to determine the optimum operational regime of a synchronised oscillator in different oscillation zones; 4) to determine the time of establishment of the phase of the synchronised oscillations.

Two types of 3 cm wavelength reflection klystrons were investigated. The experimental details are described. It was found that:

1) the variation in frequency conformed to the normal distribution law; 2) the stability of the reflector voltage was the most important factor affecting the instability of the oscillations; 3) the power level of the synchronised oscillations was determined by the stability of the free oscillation frequency; 4) to ensure frequency synchronisation, the ratio of the power of the free and

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E033/E135

induced oscillations must be in the limits ($10^2 - 10^3$) for relative instability of the frequency of the oscillations of the klystron not worse than 10^{-3} ; 5) the minimum power of the synchronised signal is determined by the constant voltage on the resonator and by the number of the oscillation zones; 6) there is a value of resonator voltage which is optimum relative to the power, and for the investigated klystrons this value was between 280 and 300 volts; 7) the time of establishment of the phase reduces with increasing power of the induced oscillations and tends to a constant value, equal to 1.5 - 2 microseconds. This time exceeds the time of establishment of amplitude (0.07 - 0.1 microseconds) by an order of magnitude; 8) the time of establishment of the phase for constant power depends on the resonator and reflector voltages.

There are 8 figures and 7 Soviet references.

ASSOCIATION: Kafedra radicapparatury, Khar'kovskogo politekhnicheskogo instituta im. V. I. Lenina (Department of Radio Apparatus of the Khar'kov Polytechnical Institute im. V. I. Lenin)

SUBMITTED: September 21 1959, and after revision, March 25 1960.
Card 3/3

GUL'MAMEDOV, Kh.; STEPANOV, V.B.

Total number of meteors according to observations made in Ashkhabad.
Izv. AN Turk. SSR. Ser. fiz.-tekhn., khim. i geol. nauk no.5:129 '61.
(MIRA 14:11)

1. Fiziko-tehnicheskiy institut AN Turkmenской SSR.
(Meteors)

GUL'MEDOVA, A.A.; STEPANOV, V.B.

Results of photographic observations of the Perseid meteor stream in Ashkhabad, August 1961. Izv. AN Turk. SSR. Ser. fiz.-tekhn., khim. i geol. nauk no.6:122 '61. (MIRA 15:3)

1. Fiziko-tehnicheskiy institut AN Turkmeneskoy SSR.
(Meteora)

KARZHAVIN, Yu.A.; CHUVILO, I.V.; KIRILOV, S.S.; INKIN, V.D.; GOLUTVIN, I.A.;
NEUSTROYEV, V.D.; STEPANOV, V.D.; TULAYEV, B.P.; KOLESOV, I.V.;
ALMAZOV, V.Ya.; PROKOF'YEV, Yu.P.; SHIMAGL, I.

Device for automatic measurement of the coordinates of charged
particle tracks recorded on bubble chamber photographs. Prib.
i tekhn. eksp. 8 no.5:54-60 S-0 '63. (MIRA 16:12)

1. Ob'yedinenyyi institut yadernykh issledovaniy.

AP-1000

S/0120/64/000, 00.75017, 11

Autorin, I. ... Iskin, V. D., Kurnzhavin, Yu. ... Mal'tsev,
V. D.; Stepanov, V. D., Chaik, I.

urin, multiple-scattering parameters from the patterns o
-er

lbor./v. Radiotekhnika i elektronika, no. 1, 1964, p. -107

multiple scattering, multiple scattering measurement, ...
and radiation chamber, microscope, scattering measure
-eps

FACT: A BMI microscope was equipped with a step-feed mechanism, a light intensity sensor based on the diffraction-grating principle. Electronic equipment includes a data-processing unit, a binary reversible counter, a description-to-punch-tape control, and a keyboard for introducing addit.

-1/p2

SELON NR: AP4016323

... into the tape. The instrument, whose functional diagram is shown in...
... measure 1, permits 4-5 times quicker data processing. The instrument has...
... been in actual operation since March, 1962; its output agrees with the manual...
... processing output to within 3%. "The authors wish to thank I. V. Chuvilin for a...
... valuable hints and comments made by him during the development of this...
... instrument." Orig. art. has: 10 figures.

COLLATION: Ob'yedineniye institutov i nauchnykh issledovaniy (Joint Nuclear
Research Institute)

SUBMITTED: 13Mar63

DATE ACC: 18Mar64

ENCL: 01

JOB CODE: NS

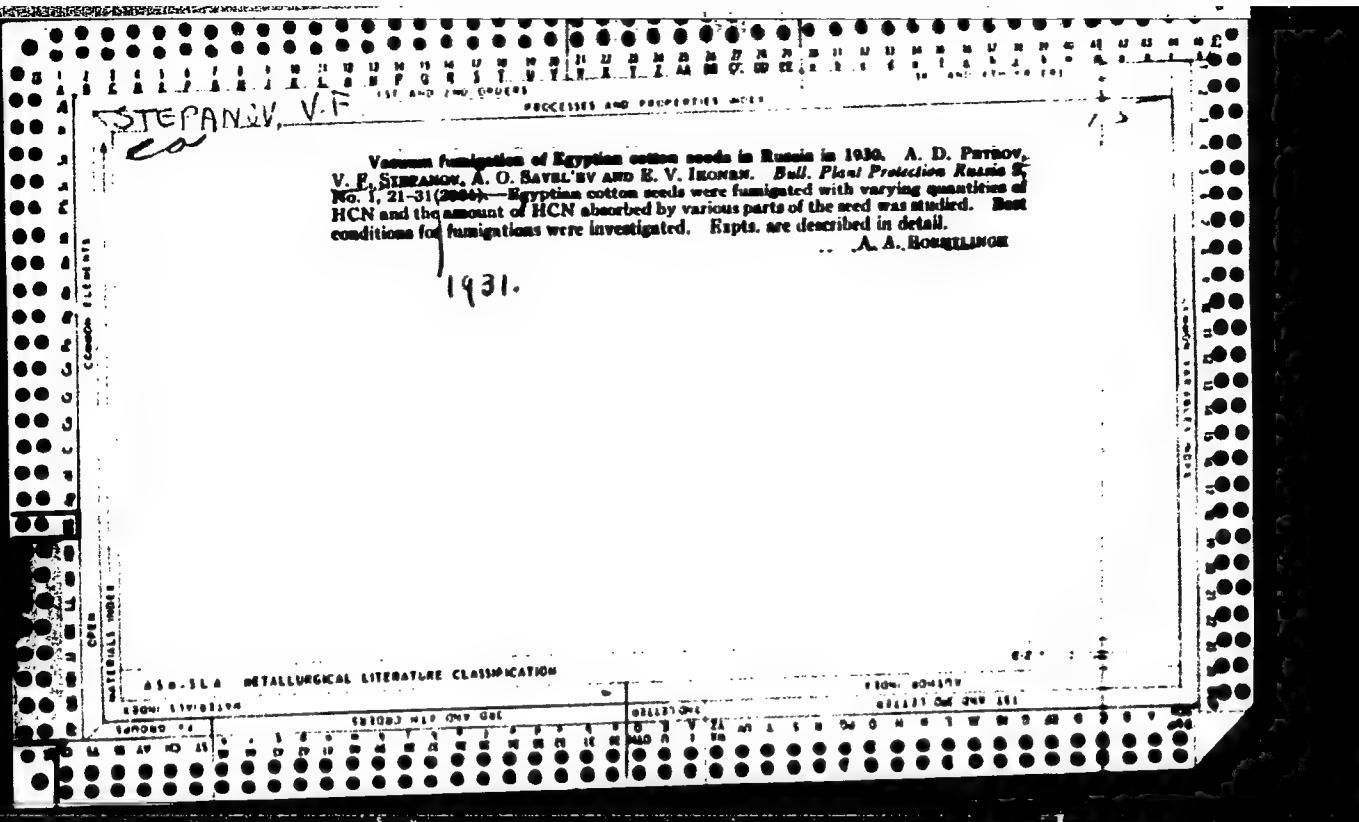
NO REF Sov: 002

OTHER: 001

Can 2/197

STEPANOV, V.P., inzhener

Water cooling of journal bearings of a cement mill. TSement 21
no.5:25 S-0 '55. (MLRA 9:1)
(Cement industries)



"APPROVED FOR RELEASE: 08/26/2000

CIA-RDP86-00513R001653210012-0

STEPANOV, V F

CA

Approval for continuing liquids. V. F. Stepanov.
U.S.S.R. 60,707, Dec. 31, 1947.

APPROVED FOR RELEASE: 08/26/2000

CIA-RDP86-00513R001653210012-0"

STEPANOV, V. F.

"Aerosol Machines," a section of the book, Aerosols, Their Application for the Control of Pests of Grain Products and Parasites of Farm Animals, by A. M. Nikiforov, Moscow, 1954.

SO: U-3,054,664

IVANOVA, Z.; STEPANOV, V.; SOSEDOV, N.; FREYMAN, I.

Using AG-16 aerosol generators for the fumigation of empty grain storages. Muk.-elev.prom. 25 no.6:27-28 Je '59.
(MIEA 12:9)

1. Moskovskaya stantsiya Vsesoyuznogo instituta zashchity rasteniy
(for Ivanova, Stepanov). 2. Vsesoyuznyy nauchno-issledovatel'skiy
institut zerna i produktov yego pererabotki (for Sosedov, Freyman).
(Fumigation) (Granaries)

YEROSHENKO, T.; MULINOV, A.; STEPANOV, V.

At the Gul'kevichi Corn Processing Plant. Muk.-elev. prom. 25
no.8:8-9 Ag '59. (MIRA 12:1)

1. Gul'kevicheskiy zavod po obrabotke gibridnykh i sortovykh semyan
kukuruzy.
(Gul'kevichi--Corn(Maize))

STEPANOV, V.F., dotsent; ZHUCHKOV, A.P., starshiy prepodavatel'

Vibratory dryer. Izv.vys.ucheb.zav.; mashinostr. no.8:52-55 '61.
(MIRA 15:1)

1. Novocherkasskiy politekhnicheskiy institut.
(Drying apparatus)

STEPANOV, V.F.

Hydraulic coal mining at the Polysaevo-Severnaya mine. Ugol' 39
no. 5:49-51 My '64. (MIRA 17:8)

1. Glavnnyy inzh. shakhty "Polysayevskaya-Severnaya".

STEPANOV, V.G. (stantsiya Pletenyy Tashlyk).

Protecting plantations from pests. Put' i put. khoz. no.5:35
My '58. (MIRA 13:3)
(Forest insects) (Railroads--Snow protection and removal)

ANUCHKIN, N.N., inzhener; BOGOMOLOV, S.P., inzhener; STEPANOV, V.G.,
laureat Stalinskoy premii.

The SM-301 press for moist pressing bricks. Mekh.stroi. 11 no.12:32-
34 D '54.
(Brickmaking machinery)

STEPANOV, V.G. (stantsiya Pletenyy Tashlyk Olesskoy dorogi)

Improve the quality of hydraulic jacks. Put' i put.khoz. no. 8:42
Ag '58. (MIRA 11:8)
(Hydraulic jacks)

STEPANOV, V.M.

New data on carbonate springs in Transbaikalia. Sov. geol. 4
no.8:113-115 Ag '61. (MIRA 16:7)

1. Ministerstvo geologii i okhrany nadr SSSR.
(Transbaikalia—Mineral waters)

MAKHONIN, V.A.; STEPANOV, V.G.

Method for studying cognition using artificial acceptance
hampering. Probl. pered. inform. no.15:75-76 '63 (MIRA 17:8)

PLYUTA, Viktor Yefimovich; STEPANOV, V.G., red.

[Introducing cold roll forming of machine parts] Opis
vvedeniia kholochnogo profilirovaniia detalей
mashin. Leningrad, 1964. 21 p. (MIRA 18:4)

ACC NR: AT6036530

SOURCE CODE: UR/0000/66/000/000/0120/0121

AUTHOR: Ginzburg, Ye. L.; Postova, V. A.; Stepanov, V. G.; Shcherbakova, V. N.

ORG: none

TITLE: Receiving and processing normal and condensed transmissions [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966.]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 120-121

TOPIC TAGS: space communications, bioastronautics, space medicine, man machine system

ABSTRACT: Operator working efficiency in a man-machine system depends on the method of presenting information to him. One type of information is the test report (emergency, informative, preventive, etc.,) issued by computer. To assure accuracy and speed of reception and processing, it is necessary that reports be as brief as possible. This requirement is necessitated by a search for means of increasing operator reliability as well as by the limited memory volume of a machine. Therefore, finding optimum means for linguistically truncating reports and their subsequent algorithmization is most essential for solving a number of information language problems.

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ACC NR: AT6036530

The aim of the present study was to find, formulate, and formalize specifications for truncating command-information texts. On the basis of a preliminary linguistic analysis, the possibility of exploiting two truncation algorithms was revealed. A check of the perception efficiency of texts truncated by one of these algorithms was conducted in experiments.

Normal and truncated texts were presented to a subject on a television screen. Exposure duration of the presentation was 3 sec. The subject's mission was to demonstrate how accurately and quickly he could reproduce the presented text. A rating of perception and reproduction consisted of noting the accuracy and duration of mission accomplishment. Five men participated in the experiments. Several prolonged experiments were conducted on each of them at various times in the day.

Results of the experiments showed that in the majority of cases, truncated text was reproduced more accurately than normal text and with a shorter latent period of completion. An increased latent period of truncated text reproduction occurred in 33% of the cases and was attributed to not having used one of the truncation algorithms. The duration of normal and truncated texts became more stable at the end of the experiment as a result of training.

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ACC NR: AT6036530

Another approach involved the truncation of texts by the subjects themselves. In reproducing truncation of texts, it was noted that the subjects used linguistically significant material assuring the integrity of semantically essential components in the text.

The authors analyzed text reproduction errors made by the subjects (omission of individual words, displacement of words in presentations, use of synonyms and antonyms etc.). It is suggested that a number of errors of the above type would have been eliminated by exploiting a second truncation algorithm. Besides the above, during the errant reproduction of truncated and normal texts, words functioning as cliches were noted. Their use was characteristic of texts which caused perceptual and memory difficulties. The results of the experiment permit hypothesizing that the algorithm under question reflects some mechanisms of internal speech formation. W. A. No. 22; ATD Report 66-1167.

SUB CODE: 06, 17 / SUBM DATE: 00May66

Card 3/3

56-2-36/51

AUTHORS: Stepanov, V. G., Zakharchenko, V. F., Bezel', V. S.

TITLE: Rotating Plasma (O vrashchayushcheyssa plazme)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958,
Vol. 34, Nr 2, pp. 512 - 515 (USSR)

ABSTRACT: Starting from the essential characteristics of freezing magnetic lines of force in a plasma it is not difficult to draw conclusions on the possibility of imparting rotating motions to a plasma by means of a rotating magnetic field. In the experimental apparatus of the authors the plasma was stimulated in a glass flask (380 mm height and 60 mm diameter). The tantalum anode was in the upper part of the flask and liquid mercury served as cathode. The rotating magnetic field was originated by two pairs of coils with iron cores at right angles to each other. The mean field strength in the flask was 325 Örsted. First the following was found: With the magnetic field applied and no discharge present the rotating wheel within the flask remained without motion. With discharge present and no magnetic field applied the

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Rotating Plasma

rotating wheel also remained motionless. The switching on of the rotating magnetic field with discharge present in the flask set the rotating wheel in motion. With increasing pressure the maximum velocity of rotation of the rotating wheel was reached within shorter periods. A change of the direction of magnetic field caused an intensive slowing down of the rotating wheel with subsequent acceleration to maximum speed. In these experiments the current flowing through the flask was kept constant at 12 A. By means of stroboscopic measurements the authors could determine that the velocity of rotation of the rotating wheel which had become steady was about 50 revolutions per second, the magnetic field rotating with about 50 revolutions per second. The results obtained make it possible to estimate that force which was exercised by the ionized gas in the rotating magnetic field on the rotation wheel. The moment of frictional forces can be neglected here. A gas with a density of about 10^{17} is in interaction with the rotating wheel; this density is about equal to that of mercury vapors. There are 5 references, 3 of which are Slavic.

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56-2-36/51

Rotating Plasma

ASSOCIATION: Ural Polytechnical Institute
(Ural'skiy politekhnicheskiy institut)

SUBMITTED: November 4, 1957

AVAILABLE: Library of Congress

1. Plasma-Motion 2. Magnetic fields-Motion

Card 3/3

24.2120, 24.6720

65706

SOV/139-59-2-5/30

AUTHORS: Stepanov, V.G. and Bezil', V.S.

TITLE: On the Possibility of Producing an Electron Plasma of
High Concentration Using Radioactive IsotopesPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959,
Nr 2, pp 36-38 (USSR)ABSTRACT: It is well-known that, as a result of the interaction of ionising radiation emitted by radioactive substances with the atoms of a medium, all the energy of the radiation is lost in exciting and ionising the atoms of the medium. The specific ionisation depends not only on the energy of the ionising particle but also on the type of radiation. α -particles are the most strongly ionising. The ionisation along an electron track is smaller than along an α -particle track and the specific ionisation of γ -rays is smaller still. In order to obtain a plasma state, activities up to 10^4 or more curies per gram of the isotope are necessary. The most suitable isotopes are β -emitting isotopes, such as strontium-90, yttrium-91, ruthenium-106, cerium-104 etc. All these isotopes are by-products of uranium-235. The isotope discussed is yttrium-91, whose half-life is 61 days and

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